

acid still behaves stably even at higher temperatures compared with standard quality hydrogen peroxide.

The rejection is premised on the notion that the hydrogen peroxide used in the present invention for food packaging sterilization is comparable to the hydrogen peroxide used for contact lenses sterilization rather than to the hydrogen peroxide used for metal pickling and polishing (as disclosed in Feasey, US 5,130,053). Applicants respectfully disagree with this interpretation.

At first sight, both the present invention and Example 5 of Feasey (col. 7) relate to chemical sterilization, i.e. hydrogen peroxide is used in both cases as a germicidal medium. But when looking further, there are many more common features between the present invention and the use of hydrogen peroxide for metal pickling/polishing rather than for contact lens sterilization.

For **food packaging sterilization**, as disclosed in the present invention, rather concentrated hydrogen peroxide is used (35 %, H₂O₂ type D0035) and the treatment is conducted at a high temperature (70 to 85°C, see § 15 and examples 1-3). An extract of the Ullmann's Encyclopedia of Industrial Chemistry (attached hereto as Appendix 1) confirms that aseptic packaging is optimally conducted using hydrogen peroxide having a high concentration, for example between 45 and 50%, and heated at a temperature of for example from 80 to 90°C, the sterilization being ensured in several seconds (see especially page 26, col. 2, § 1-2). The treatment will be conducted in a continuous manner, and the hydrogen peroxide solution will thus be used for a quite long period of time, up to several hours (examples of the present invention were conducted during 960 min = 16 hours). When used in dip baths, the hydrogen peroxide solution is progressively contaminated with packaging material residues which can lead to heterogeneous decomposition (see patent application as published, § 16). Packaging material residues can for example be plastics or metals from metal cans or from metallized polymers (see Annex 1, chapters 6.5, 6.5.14 and 6.6).

According to Feasey, **contact lenses sterilization** is conducted using diluted solutions of hydrogen peroxide, having a concentration of 3 % w/w (col. 7, ex. 5, l. 13-14). This statement is confirmed by a the Gasset et al., *Archives of Ophthalmology* article attached as Appendix 2. This article teaches that contact lenses are fully sterilized after 5 (to 15) minutes immersion into a 3 % hydrogen peroxide solution at room temperature (see page 415, col. 2, l. 16-18 and col. 1, last 2 lines to col. 2, 3rd line). The hydrogen peroxide used for contact lenses sterilization must be highly pure and is used only once, before being discharged.

Regarding **metal pickling** such as stainless steel pickling, hydrogen peroxide may be added for example to the classical mixture nitric acid / hydrofluoric acid to prevent NOx emissions (see Sanders, *Anti-Corrosion Methods and Materials* attached as Appendix 3). Hydrogen peroxide 35 % is usually added to the pickling bath, directly or via a recirculation loop (see p. 22, col. 2, and especially l. 15). Coil or sheet pickling is usually carried out in baths (closed tanks) at 45-70°C (usually around 60°C) during a short time such as 2-4 minutes (see p. 21, col. 1, last 2 § to col. 2, 1st §). The treatment will usually be conducted continuously, and the pickling bath containing the hydrogen peroxide solution will thus be used for a quite long period of time (see Figures 1 and 2). Hydrogen peroxide can also be used in combination with sulfuric acid to prepare nitric acid-free pickling solutions (p. 23, col. 2, § 2). In such applications, the hydrogen peroxide bath is progressively contaminated with metals.

These various features are summarized in the following table:

	Food packaging sterilization	Contact lenses sterilization	Metal pickling
H ₂ O ₂ concentration	35 %	3 %	35 %
H ₂ O ₂ purity	Progressively contaminated with packaging material residues (plastics, metals)	High purity	Progressively contaminated with metals
Type of treatment	Continuous , by dipping in baths	Batch	Continuous , by dipping in pickling baths
Treatment temperature	Heated to 70-85°C	Room temperature	Heated to 45-70°C
Time to perform the treatment	Several seconds	5-15 minutes	Short time , 2-4 minutes
Total treatment (use) time for the H ₂ O ₂ solution	Several hours	5-15 minutes	Long time

From the above, it is apparent that the present invention is closer to the use of hydrogen peroxide in metal pickling than in contact lenses sterilization.

As already explained, for metal pickling applications, Feasey teaches the addition of 1000-5000 ppm of stabilizer (col. 4, l. 54-5 8).

Thus, if the skilled person were to attempt to apply the teaching of Feasey to the dip bath sterilization of food packaging, he would select an amount of stabilizer of at least 1000 ppm as taught by Feasey for pickling baths to ensure a sufficient stabilization of the hydrogen peroxide bath.

Accordingly, the combination of Grimberg et al. and Feasey et al., considered together with the knowledge and skill of a person of ordinary skill in the art, fails to disclose or suggest all the features of the presently claimed invention or to make out a proper *prima facie* case of obviousness.

As for claim 8, it should be sufficient to note that Voegle et al., which was cited merely to show controlling the temperature of the hydrogen peroxide bath, does not remedy the failure of Grimberg et al. and Feasey et al. to disclose or suggest the basic features of the claimed invention. Consequently, dependent claim 8 is submitted to be patentable at least for the same reasons as its parent claim 1.

Reconsideration and withdrawal of the obviousness rejections are accordingly, respectfully requested.

Conclusion

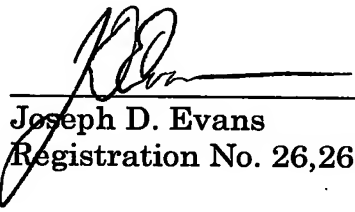
For the foregoing reasons, the application is respectfully submitted to be in condition for allowance, and prompt, favorable action thereon is earnestly solicited.

If there are any questions regarding this Reply or the application in general, a telephone call to the undersigned at (202) 624-2845 would be appreciated since this should expedite the examination of the application.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket # 101771.53337US).

Respectfully submitted,

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